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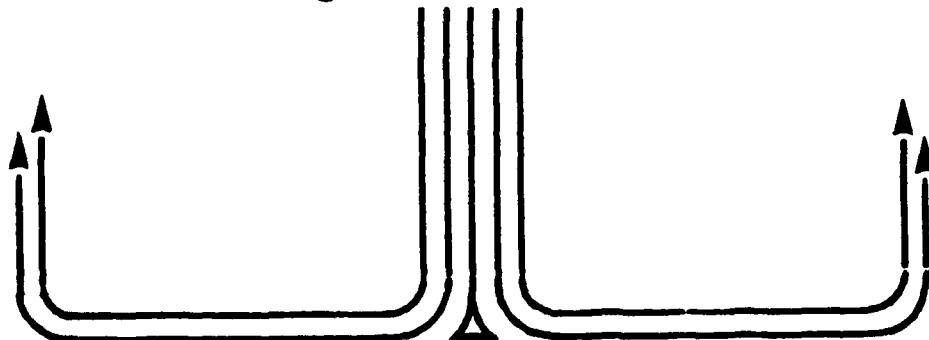


STUDENT REPORT

A STUDY OF STRESS, ITS CAUSES
AND FACTORS FOR ITS MITIGATION

GS-13 JAMES KENNETH SHAW 87-2280

"insights into tomorrow"



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AND FACTORS FOR ITS MITIGATION

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TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

FIGURES

FIGURE 4-1 -- Stress and Performance 24

Chapter One

INTRODUCTION

Background and Purpose.

Orientation. Stress is noted by practitioners of medicine and psychology to be a causative factor in the deaths of many people, and at the very least something which reduces productivity in countless places of employment throughout the country in every trade and profession. A strong case can be made that the deleterious effects of stress can be mitigated, or perhaps eliminated by management if a proper awareness is established concerning the causes of stress whether on or off the job, and how to counteract, and preclude the factors which cause stress in the first place. Likewise, on an individual basis, informed awareness of the causes of stress and knowledge of preventive measures can help each person to be more productive and beat the actuarial tables on life expectancy.

Purpose. The purpose of this research will be to determine if:

- a. Management can through informed awareness of stress and its causes either eliminate or, at least mitigate its negative effects.
- b. Each individual can take positive measures to

preclude harmful stress.

Justification. Anything which harms, kills or reduces the productivity of people is certainly worthy of study to determine what actions might be taken to provide a resolution. Although professional journals are replete with information on stress, little about stress seems to be known among management personnel, or others throughout all sectors of society.

Focus of the Study. This study will focus on three areas. First, in Chapter Two, a general review of stress will be made, based on a comprehensive assessment of all available literature, in order to present the reader of the study with sufficient information to gain a general understanding of stress. Second, in Chapter Three, the study will focus on many of the specific causes of stress and how management might recognize them in their employees. Concurrent with this area, Chapter Four will present a consensus, based on research materials, of what actions management might take to mitigate the negative effects of stress. Finally, in Chapter Five, the study will offer an approach to prevention, on an individual basis, of stress.

Methodology and Procedures. A bibliographic search of all relevant and available stress related books, periodicals and studies available at the Air University Library, Maxwell Air Force Base, Alabama, has been conducted. All appropriate materials to the study have been reviewed for information to ensure that a balanced study of the subject could be made.

Conclusions and Implications. The results of this study indicate numerous causes of stress in the workplace. Fortunately, as the study shows, much can be accomplished by management, at nominal or even no cost, to mitigate the negative consequences of stress, or perhaps eliminate the causes for its existence altogether. Similarly, it can be concluded from the data studied that lay people generally are not knowledgeable of the causes of stress and what they might do to preclude or counteract the negative effects of stress. The implications of this are a continued loss of manpower resources, and productivity, unless something is done to alleviate this situation. As indicated above, Chapters Four and Five offer suggestions and ideas for both managers and individuals on how to adopt an approach which may well reduce or mitigate the damaging effects of stress. The following chapter will furnish the reader an introduction to stress, define common terms, and provide a working knowledge of the subject.

NO PRINT

Chapter Two

A REVIEW OF STRESS

There are many definitions of stress, each of which is slightly modified, or in some way changed, to fit the desired connotation for the particular emphasis of study being done. Some of these definitions are shown below, and should be of particular interest to managers of personnel resources.

Stress Defined.

Stress is the body's reaction to situations, conditions, or events each of which may in varying degrees place extraordinary physical or psychological demands on the human body (2:6).

Stress is something that puts on the body demands which must be adjusted. The body's non-specific response to such demands may be either positively or negatively oriented (16:20).

Stress is pressures or burdens of the job which have a deleterious effect on employees (16:21).

Stress is "A physical, chemical, or emotional factor that causes bodily, or mental tension and may be a factor in disease causation" (3:11,1).

Stress:

The unpleasant subjective experience resulting from repeated confrontations with ambiguous situations requiring a response from several possible alternatives in which the individual perceives himself incapable of performing adequately (16:23).

Stress is "the state manifested by a specific syndrome which consists of all the nonspecifically induced changes within a biologic system" (16:22).

Stress is further defined as:

The external or resisting force brought into action in part for external forces. Stress becomes the interaction between external environment and individual with past experience of the individual as a major factor (16:27).

For the purposes of this study, it is sufficient to say that stress is the adverse impact on the human body or mind caused by pressures on or off the job which diminish, or prevent a person from achieving his or her full potential on the job. Within this context, positive stress, commonly called eustress, will not be covered.

Effects of Stress. The manager of personnel resources must have an understanding of the effects of stress on the human body and their concomitant effect on the overall productivity of the workplace. The toll exacted by stress can be extraordinarily high as illustrated below:

Almost one million Americans die annually because of cardiovascular disease (700,000 heart attacks), or almost 50% of all deaths. A strong relationship between heart disease and stress has been shown. High cholesterol levels, high blood pressure, obesity, heredity, sedentary life style, diabetes, and heavy cigarette consumption heretofore have been recognized as precursors to cardiovascular disease; however, there now exists substantial evidence which shows a high correlation between

stress and heart disease. In fact, it has been shown that the above factors create just the preconditions for heart attacks -- the factor which actually brings on the heart attack is excessive stress. Laboratory tests have demonstrated conclusively that heart attacks can be caused by stress (15:47; 19:4-5).

Hypertension (high blood pressure) is also caused by stress (and other factors, as well). The extent to which hypertension is due to stress has not been determined exactly; however, there is an unquestionable effect. For example when faced with threats, either true or perceived, the body increases the blood pressure in order to supply more blood (energy) to vital body parts. Subsequently, when the threat has diminished, the blood pressure is expected to return to normal, although if still facing some unconscious threat, the blood pressure may remain elevated, thus maintaining long-term stress on the body (19:7-8).

Stress has also been shown to be a causal factor in various other illnesses. Some of these include arrhythmia (irregular heart beat), ulcers, diabetes; backaches and headaches; allergies; and sexual dysfunction (19:9-12). Additionally, stress has been identified as a factor in lowering the body's immunity, or resistance to disease, at least on a temporary basis (11:1).

The dollar costs of stress are tremendous and are spread throughout American society, and virtually every segment of the

work place. For example, the United States Clearinghouse for Mental Health Information reported that in the United States, industry incurred a seventeen-billion dollar decrease, annually, in its productive capacity because of mental dysfunctions induced by stress (1:179). Much higher costs associated with stress are suspected; however, most reporting ignores stress as a cause of illness. This causes stress to be either denied or ignored; therefore, the true factor is hidden (1:163). The following chapter will identify the causes of stress, and how management may learn to recognize them.

Chapter Three

THE CAUSES OF STRESS AND THEIR RECOGNITION BY MANAGEMENT

The causes of stress are many and varied. These causes, commonly termed stressors, affect each person differently. In fact, what causes stress in one individual may have no discernible effect on another. This makes it particularly important for management to have an understanding of stress and how it may affect their employees as this will permit senior personnel to manage more effectively, thereby improving productivity and, in general, make the work place a more enjoyable environment in which to operate (1:40,73).

Before discussing the specific factors which are associated with stress, it should be noted that people with different types of personalities have been proven to react much differently to stress. That is, people who have been classed as having Type A personalities react much differently to stressors than do persons with Type B personalities. Knowledge of what determines whether an individual is a Type A or Type B is critical to a supervisor because such information can be used in the formulation of a management approach which otherwise might be

ineffective. The following descriptions are provided to illustrate the major differences in these types of personalities.

Type A Personality. Persons with this type personality were first identified by noted cardiologist Meyer Friedman in 1969 (4:16; 13:4). These people typically have high-risk, coronary-prone behavior and, in fact, have a 1 in 5 chance of having a heart attack before their 60th birthday (8:217). Some typical characteristics of the Type A personality include:

- Always on-guard and unable to relax;
- Not willing to rely on others;
- Appear to be always under time pressure;
- Not willing to listen to others - cut others off before they finish a sentence;
- Often start a new task before finishing the old one;
- Often pay no attention to their own psychological needs;
- Often appear to be vulnerable because they accomplish first what others have failed to do (this is especially bad for females and minorities since they are also expected to be role models for others) (1:86).

In other words, the Type A personality is best characterized by "extremes of competitiveness, striving for achievement, aggressiveness, haste, impatience, restlessness, hyper-alertness, explosiveness of speech, tenseness of facial

musculature, and feelings of being under pressure of time and under the challenge of responsibility" (4:16).

Type B Personality. Persons of this type are noted to be opposites of those with Type A personalities. In general, they show the following characteristics:

- Satisfied to work one job at a time;
 - Work very consistently without self-induced pressure;
 - Not necessarily undisciplined or careless, they simply have no need to constantly "prove themselves"
- (13:23-24).

From the preceding information, it is apparent that persons with Type A and Type B personality traits may react differently to situations and events facing them at work. Consequently, it is important to look at the work environment as a creator of stress.

Causes of Stress Relative to the Work Environment. Each place of work is different from another, even if the same type functions are performed or products produced, e.g., all automobile assembly lines generate similar products, yet the conditions in each factory can be vastly different. The point of this is that it is difficult to make a generalization about what in any particular environment will cause stress in employees. Armed with the knowledge of personality types and a general understanding of the following information should, however, allow management to go a long way in reducing or eliminating stressful conditions on the job.

It has been recognized that the most significant stress factor (on the job) is the amount of control one has over one's own job. Other factors are:

- Relationship with supervisor;
- Relationship with co-workers;
- The degree of self-satisfaction one has concerning the job (In other words, do you really want this job);
- The overall work environment (4:26; 13:17).

Executives as well as all those up and down the hierarchy within a company or corporation are subjected to stress; however, different scenarios are involved and are dependent upon the occupational position occupied (4:29; 14:88; 17:140). It has been noted that as one's sense of control increases, a concomitant response is a lowering of conditions which cause stress. However, this seems paradoxical when considering that as people move up the executive ladder, they incur what is commonly referred to as "executive stress." This is not limited just to executives, however. Consider the following subset of stressors related to increased responsibility:

- Anticipation. Thinking of the consequences of each decision which must be made can cause sleeplessness;
- Visibility. Decisions affecting more people and costing more money increase the power of the spotlight on the decision-maker;
- Success. Every time one moves up a notch, new norms

for performance are set. This means ever increasing demands on one to excel;

- Failure. A failure for those at the lowest echelons often gives them a chance to learn from the mistake; however, for those higher up, knowing that a failure can have serious ramifications, possibly loss of position or bankruptcy of the company can cause enormous stress on some (10:172; 15:110; 17:141-143).

Persons in the lower, more mundane positions are not exempt from stress which is related to their jobs. Consider the following examples:

- Clerk typist. In spite of a desire to acquire more responsible positions, one is stuck in a job typing simple correspondence and answering the telephone for twenty or more years;

- Salesman in a department store. Rising expectations may not be met due to lack of vacancies, downturn in the market and a host of other reasons, all of which may be beyond the person's control (17:147-148).

Every segment of our society, whether in the commercial world, the Civil Service, or military has a multitude of jobs which, although necessary, do not permit many to move up, even though their capabilities might so warrant. Managers over these people must be sufficiently astute to recognize and manage these employees.

The workplace routine is a factor which is often overlooked

as a stressor, albeit wrongfully so. This is especially true when a job involves tasks which are not varied and are repetitious. In one study, workers on assembly lines which were machine paced had the highest stress and strain of twenty-three occupations studied (17:149). Other items related to the workplace, and cited in studies as particularly stressful include noise, heat, dust, odors, and poor lighting. Many of these are actually hazardous to health, e.g., asbestos and fiber dust, exhaust gases, and many chemicals. Some disturbing statistics indicate that each year in the United States, fully one-eighth of all workers will incur some kind of job related injury, and that 5,000 are killed in accidents related to the job. Further, some 100,000 die of diseases related to the occupation. A substantial number of these deaths and injuries are thought to be related to stress (17:150,153). Other related causes of stress include:

- Rumor control. This is a particularly powerful source of stress, especially when the rumors involve potential layoffs or other related changes concerning relocation, promotion, and shift changes (17:152);

- Low Self-Esteem. This is a factor often overlooked because it may not be readily apparent. A fear of being rejected is a very real thought in the minds of many (3:66);

- Money. Money, and what it represents, i.e., what it can buy, drives many people to extremes, and can be classified as a job related stressor. The knowledge that a co-worker makes

more can also be a stressor. This is felt to be one significant reason that many corporations have a policy prohibiting discussions about salary among employees (3:173).

Recognizing Stress in Others. Key to any stress management program is the recognition of stress itself. This is often very difficult as the effects of stress manifest themselves in varying degrees and are not immediately apparent. The following signals are good indicators, and typically point to "burnout" and "system overload":

- Disregarding both high and low priority tasks;
- Reducing amount of time allocated to each task;
- Avoiding or shift responsibilities;
- Refusing to accept new information;
- Becoming superficially involved -- give up on projects;
- Displaying negative and cynical attitudes toward others;
- Appearing detached or depersonalized;
- Emphasizing strict and absolute adherence "to the book";
- Displaying inappropriate humor;
- Stealing or otherwise "ripping off the organization";
- Wasting time;
- Arriving late for work -- frequent absences (1:174).

Problem solution usually begins with a recognition and definition of the problem itself. An awareness of the points above should allow management to understand the many potential problems in this area. With this in mind, the following chapter

presents information which management might use to institute an active program for stress prevention and mitigation.

Chapter Four

MANAGEMENT ACTIONS

FOR STRESS PREVENTION AND MITIGATION

Astute managers will concern themselves with stress management because excessive levels of stress over lengthy periods of time can cause physical, psychological, or emotional distress among their employees. This distress obviously can be extremely harmful to each person's health as well as very harmful and costly to any office or firm (19:vii). Unfortunately, when it concerns stress, the costs which are thereto associated are largely hidden (1:163). Effective managers will never ignore above average employee turnover, problems with absenteeism, lowered production, and other signals which indicate that organizational goals, or targets, are not being met. They will look beyond the immediately obvious facts to determine the source(s) of such aberrant conditions. Many times, the root causes may be attributable to poor or incomplete training, or to bad equipment. However, as shown in the preceding chapters, excessive stress can be shown to be a prime factor for failures within the organization. With this in mind, management must institute an intervention program which effectively counteracts the effects of excessive stress among its employees, and wherever possible, actually eliminate the

conditions which produce the undesirable stress in the first place. This chapter shows a variety of situations which, if corrected by management, may make the workplace a more enjoyable, and productive environment.

AN ORGANIZATIONAL STRESS MANAGEMENT PROGRAM

In developing a program to effectively deal with stress, it should be recognized that no one approach is effective across the board for every situation or organization. Management must tailor a system to fit specifically the environment in which the employees operate. For example, persons employed in a heavy equipment manufacturing plant do not face the same stressors as someone working in a quiet office. Because of these different situations, the following information is divided into two categories, i.e., Physical Environment Stressors and Organizational Stressors. The corporate program should merge the responses to these two categories into one cohesive program.

PHYSICAL ENVIRONMENT STRESSORS - A MANAGEMENT APPROACH

Physical environment stressors have often been categorized as "blue-collar" stressors. This is attributable to the higher accident rate for employees in these occupations (8:230). However, the physical environment confronting many employees in any other occupation can be just as physically stressing to many people, and, if not corrected, lead to lowered productivity or even an emotional overload in certain people (1:71). An effective stress management program encompassing the physical environment will focus on the physical well being, and

psychological well-being of the employees and should concentrate on the following areas (7:256-269):

- Ergonomics. Often overlooked as a stress creator, the adequacy and arrangement of the work surface, seating, and storage space impact personal comfort and productivity. Likewise, the physical capabilities of employees can vary dramatically, consequently, must be considered for every position. For example, sitting in an uncomfortable chair in a cold and damp office can eventually bring many people to a point where it becomes stressful, resulting in a concomitant decrease in productivity (7:256).

- Office Automation. The operation of computer terminals which include cathode ray tubes (also known as video display terminals (VDT)) is known to cause discomfort when the work area is not properly designed or when the equipment is not properly situated. Special consideration must be given to such areas as lighting, height of support surfaces (especially for the keyboard unit), viewing distances, etc. (7:257).

- Ventilation, Temperature Control. These are among the most important factors leading to the comfort (or discomfort) of employees in virtually every work situation (7:258; 9:90-92). Points to consider are the perceived "freshness of air" and even the air speed of the circulation system (7:258).

- Lighting. Often overlooked, too much, too little, or the wrong type of lighting can be a cause of stress which can

be easily rectified. The type lighting must be appropriate to the task which is to be performed. For example, a study indicated that productivity and accuracy were higher at increased levels of illumination. Other studies indicate that some duties, such as typing and proofreading dictate special considerations with regard to lighting. Also, natural lighting can be an important consideration. Studies show that natural lighting and a view to the outside were environmental factors which were highly rated (7:258).

- Privacy. It is important to determine the size of each group requiring privacy (7:257). This may vary from solitary privacy for a single individual to a larger group. This is dependent upon the ability of each person or group to determine the transmission of information from themselves or control of information from others outside their immediate area of control (7:267). One study, in particular, identifies a private place in which to work as a principal factor in the comfort of office workers (7:268). When considering visual and accoustical privacy, studies show that accoustical privacy is more important than visual privacy (7:268). It should be noted that a certain amount of ambient, or background noise is essential in most work environments to mask conversations and the myriad other office sounds (7:266).

- Space and Safety. More space and less crowding are highly desirable according to one study (7:268). Some research shows that persons subjected to crowded conditions to be

affected physiologically, and that crowding can be deleterious to task accomplishment, psychosocial functioning and physical health (7:268).

The proper design of the work area can ameliorate the stress generated by environmental conditions. Consequently, it is critically important that management design and plan the work areas. Some other factors to consider in mediating stress within the work environment include social interaction and symbolic identification (7:270-278). Some key points relevant to each of these follow:

- Social Interaction. A major source of stress in the workplace is an individual's interaction, or relationship with co-workers (7:270). One study indicates that positive relationships in work groups also are a positive factor in individual as well as organizational health (7:270). Further, when faced with boring, repetitive tasks, or increased workloads, a supportive relationship improves the perception of stress working conditions (7:270).

- Symbolic Identification. According to one study, people became healthier as their status improved in the organization hierarchy (7:272). Environmental considerations which fall under this category include the size or square footage of the office area. A conclusion to be drawn from this is that status markers, i.e., those thought to show the incumbent's status, are related to job satisfaction (7:273). A corporate-wide policy which de-emphasizes such symbolic

identifiers may reduce or eliminate their impact within the work environment, although no definitive studies to prove or disprove this are known to exist. For example, the Japanese automobile plants in this country have instituted a policy which includes the wearing of identical uniforms by management and blue-collar personnel, no reserved parking for anyone, etc.

It should have been observed from the above information that management can do much to eliminate or reduce stress within the work environment by improving the physical environment involved. Likewise, a corollary approach for the organizational stressors facing employees can be developed which when used together form a synergistic effect for the reduction of stress.

ORGANIZATIONAL STRESSORS - A MANAGEMENT APPROACH

Once the physical environment within the work place is modified to effectively deal with stress, the job of stress management is only partially complete. Remaining are many organizational factors which must be dealt with in order to cope with the many and wide variety of organizational stressors which face the typical worker, or executive in today's offices, factories, and in virtually every situation where management and subordinates interact. Below are a number of stress factors traceable to the organization, and for management some recommendations based on a variety of studies on how to cope with them. As in the previous section on the physical environment, there is no one solution which may be applied across the board to fit every situation. It also must be noted

that people with different occupations encounter different amounts and kinds of stress. Because of this, they are known to experience varying levels of strain (1:73). Likewise, people with Type A personalities will more than likely exhibit strain reactions upon encountering organizational stress than do those without such traits. Consequently, occupations which attract Type A persons are at greater risk than others. For example, the field of administration draws an inordinate amount of Type A personalities, a field also known to show a greater than pro rata amount of heart disease than occupations that do not attract such persons (1:74).

STRESS AND PERFORMANCE

Studies show conclusively that there is a strong relationship between stress and performance. The chart below (adapted from 12:23) shows an optimal level of stress which produces the best performance, and beyond which demonstrates a lowering of productivity. An effective organizational stress management program will attempt to keep the level of stress encountered by all employees in the optimal productivity zone (19:29).

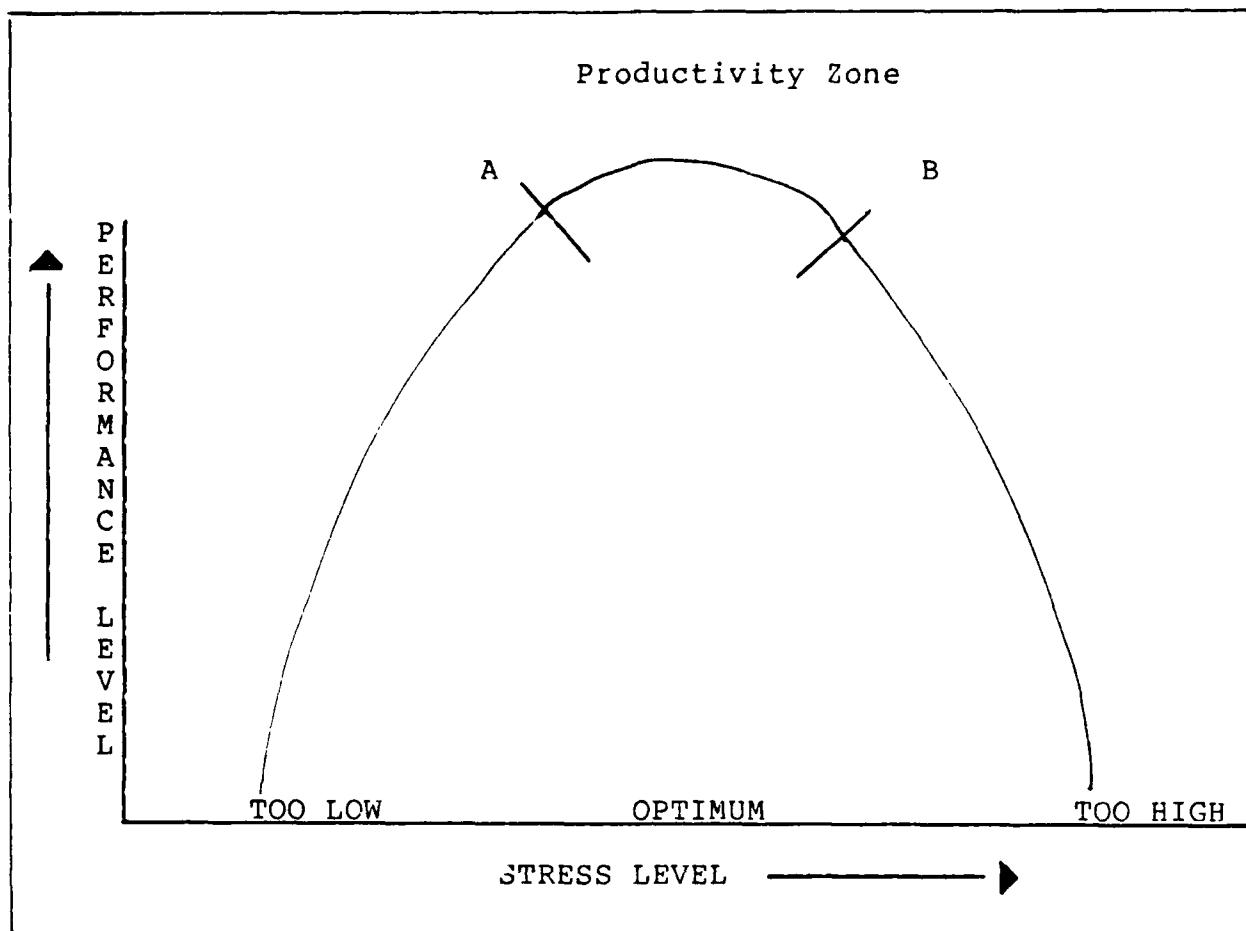


FIGURE 4-1, Stress and Performance

There are many methods for management to use to keep stress at a predetermined level, i.e., one which maintains the requisite level of productivity. The management approach selected should consider the following factors:

- What is stressful for one person is not necessarily stressful for another. For an experienced race car driver, high speed travel on a track would not be as stressful as it would be for a novice driver. In other words, specific experience with stress producing conditions, whether physical or psychological,

normally permits one to cope with it better. Management should ensure that their personnel are given the right experience to face their assigned responsibilities. For example, if one's duties involve presenting briefings to top management, then ample opportunities for practice should be given to those affected well before the actual briefings (19:27).

- Boredom. One study indicates that boredom produces stress as rapidly as, maybe even faster, than factors such as long hours, heavy workloads, and overly heavy responsibilities. Those reporting the most boredom along with the most dissatisfaction concerning the workload were assembly line personnel and their relief workers (19:39). Managers over persons in positions such as these should diversify the jobs as much as possible. Job swapping sometimes may work well also. Anything which gives the worker more control over the task performed should also help alleviate boredom.

- Deadlines and Time Pressures. This category is one of the key intrinsic job stressors which are usually at the top of the list when executives are asked to identify stress producing situations (19:42). This is something which seldom can be removed from every job. A recognition by workers and management that these pressures are normal and expected may assist in a greater understanding and ability to cope with such events.

- Exorbitant Work Demands. Studies indicate that understaffing is the cause of this situation, normally.

Cyclical work also creates situations where it is not possible to fully staff a position for the entire year when, for example, an overload condition which is spread over the staff exists for shorter periods (19:42). To avoid burnout, and loss of personnel, management must provide staffing at the proper levels, and for those surge conditions, spread the workload appropriately. Adequate training beforehand will facilitate sharing the workload.

- Information Overload. In most work environments, it simply is not possible for one to read and absorb all the printed material which is passed around. Management must routinely review such material with the view that whatever is not necessary be eliminated. Also, material can be categorized by "mandatory reading," "optional," etc. (19:42).

- Underpromotion/Overpromotion. These two situations, at opposite ends of the spectrum have one point in common - they produce stress. It is just as potentially damaging to assign non-demanding "make work" to an outstanding employee as it is to invoke the "Peter Principle," i.e., to promote individuals into a position for which they are not qualified (19:47). Management must through proper job design, and personnel selection preclude either of these situations from occurring.

- Lack of Job Security. It has been stated that throughout the aerospace industry, job insecurity does not cause one to work more effectively -- it puts one under so much stress that ineffectiveness results (19:49). The solution for this

situation in many industries is not readily apparent. Perhaps, the best approach is a corporate transition office which provides office space and employment assistance for displaced employees.

- Lack of Participation. One study indicates that not being able to participate in decisions that affect one's work has the greatest deleterious effect in terms of stress on employees (19:53). This is a fertile area where prudent management can do much to alleviate the stressful effects by designing jobs in a manner which gives employees the opportunity to participate. Examples include employee directed quality circles, authority to stop assembly lines in case of malfunction, etc.

- Lack of Responsiveness. This stressor occurs when management is insensitive to the concerns and requests of their employees. Whether real or perceived, if not corrected, this situation will lower morale and productivity throughout an organization. One study shows lack of responsiveness to be a major stressor within the scientific community (19:55). Management must ensure that responses are given to employees even if negative, i.e., no action can be taken.

In summary, implementation and maintenance of a corporate program to manage stress has a good chance of success if a balanced approach is taken; that is, one which considers the many and different sources of stress facing the employee, and one which also recognizes the differences in people themselves.

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Chapter Five

PERSONAL ACTIONS

FOR STRESS PREVENTION AND MITIGATION

Each individual can do much to cope with the harmful effects of stress. Key to this is an awareness of stress, as outlined in the previous chapters. Once armed with an understanding of stress, a personal program can be implemented which will equip one with the wherewithal to successfully counteract the daily stressors which increasingly place demands on our bodies and minds. With this goal in mind, this chapter will show that a number of studies indicate one can do much to deal with stress while at the same make life more enjoyable and productive.

A PERSONAL PROGRAM

A long-term, enduring approach should be taken for a personal stress management program. Just as with many things in life, miracles are seldom wrought overnight. While progress can be seen relatively soon after beginning a conscientious effort, the real benefits start to accrue only after weeks and months of effort. A personal stress management program need not be complicated, but should be structured so that all elements together provide a synergism which would not be possible were each part done in isolation. The program should include two

basic categories, i.e., physical conditioning and mental conditioning.

PHYSICAL CONDITIONING

Physical health has been shown to be a deciding factor in resisting the deleterious effects of both physical and psychological stressors (19:98). A good physical conditioning program will include exercise and diet.

EXERCISE

Exercise is one of the most effective techniques which can be used to reduce stress (1:172; 19:115). The two primary benefits normally attributed to exercise are improved cardiovascular fitness, and the forced relaxation which is mandated after rigorous exercise (19:116). Recreational exercise has been shown to provide for tension reduction and diversion (1:202).

DIET

When combined with a physical exercise program, eating a balanced diet consisting of proper quantities of vitamins, protein, minerals, complex carbohydrates and fiber will hone the body to a condition which will meet stress head-on (1:201; 13:103). Simply stated, it is mandatory that good nutritional habits be maintained for the long term to combat stress effects (1:172).

MENTAL CONDITIONING

A personal stress management program which takes care of the mind is just as important as one which concentrates on the

physical aspects (10:51; 13:91; 19:98). The following techniques have been shown to be effective in reducing psychic stressors.

SUPPORT NETWORK

Strong interpersonal relationships are, according to numerous studies, critical to continuing good health while facing enduring elevated levels of stress (1:173). These relationships, or networks, should involve interaction with persons from outside the normal work environment, as it has been learned that it is not especially wholesome to socialize only with co-workers (5:47; 19:100).

RELAXATION

One of the most effective techniques to reduce stress is relaxation (19:123). Although somewhat alien to American culture, the technique of meditation is definitely effective in reducing stress. A sample of this technique is shown in the following test:

Simply close your eyes and take ten slow deep breaths. Each time you exhale, count silently - "one" after the first breath, "two" after the second breath, etc.-up to ten. If you lose count or find yourself "working" on thoughts as they pass through your mind, start your count over. When you are finished, you should feel relaxed (your blood pressure will go down temporarily, too, if it tends to be high) and ready to concentrate fully on your next activity (1:173).

Other stimuli which may be used to induce relaxation are a serene environment, sitting with eyes closed in a comfortable position, and accomplishing a simple, repetitive mental exercise (8:247). A certain amount of leisure time is also necessary, so

that one may unwind and forget the daily pressures (3:199).

SELF-ESTEEM

An improvement in self-esteem will reduce stress. While this not a trivial task, the following two basic, and related, psychological needs, if met, will ensure that one will not likely suffer from a low self-concept. These are: the need to love and be loved; and the need to feel worthwhile to one's own self (1:173; 19:193). Related to this is accepting one's self for what one is, i.e., all strengths, weaknesses, and failures (6:101; 19:99).

In conclusion, there are, indeed, many other factors which may be used to reduce stress on a personal basis. The subset shown above is representative of the techniques commonly shown in results of contemporary studies. Incorporation of these into a personal program will go far to mitigation of stress, or perhaps allow one to prevent the stressful events from occurring altogether.

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